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**TRENDS IN THE USE OF  
TECHNOLOGY  
IN  
HOSPITAL MENU SYSTEMS**

**by  
Karen A. Wunder**

**A thesis submitted to the  
Faculty of the School of Food, Hotel and Travel Management  
at  
Rochester Institute of Technology  
in partial fulfillment of the requirements  
for the degree  
of  
Master of Science**

**July 1998**

**FORM I**

**ROCHESTER INSTITUTE OF TECHNOLOGY  
School of Food, Hotel and Travel Management  
Department of Graduate Studies**

**M.S. Hospitality Tourism Management  
Presentation of Thesis/Project Findings**

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## **ABSTRACT**

As the twenty-first century approaches, hospital foodservice directors are faced with the conflicting tasks of cutting costs in response to various budgetary restraints while also providing quality service to customers with increased expectations in an increasing competitive environment. New technologies such as computerized, interactive menu systems have been developed in an attempt to offer increased customer satisfaction while also cutting costs at all levels.

The focus of this study was to determine how hospitals nationwide were responding to the dilemma of cost cutting while achieving increased quality standards and in what ways technologies were being embraced to provide service excellence at cost savings.

The study sought to identify the most commonly utilized menu systems in US hospitals and to identify trends in the use of recent technologies for such menu systems.

Questionnaires were sent to 300 hospitals from 41 states and Washington, DC. Programs and routines in the Statistical Package for the Social Sciences (SPSS-X, version 2.1, 1986, SPSS, Chicago, IL) were used for all data analyses. One hundred and thirty-five (47%) of questionnaires sent were returned.

Results indicated that 3 of the 135 respondents were utilizing automated menu display systems. the majority (70%) of hospitals were still utilizing handwritten methods for recording menu choices. Of automated systems

utilized for recording menu choices, 12.6% were using a computer in the diet office, 3% were using hand-held computers, 2.2% were using voice activated computers, and 0.7% were using scanners. The question was not applicable for 9.6% of respondents who offered a non-select menu, and 1.5% of hospitals who indicated that they serve meals immediately as ordered.

The majority of respondents indicated that they were somewhat satisfied with their current menu system regardless of whether or not they had an automated system in place. Most respondents indicated that they would consider automation in the future.

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## **Chapter I.**

### **INTRODUCTION**

Today's hospital foodservice directors are faced with the conflicting and challenging task of cutting costs in response to budgetary constraints while providing service of utmost quality to customers with increased expectations in an increasingly competitive environment.

Budget cutting often involves reductions in the areas of department staffing, availability of menu items and services, decreased use of high quality, brand-identifiable food items, and ultimately a reduction in quality of services. However, the quality of the food service often produces positive word of mouth among patients which is increasingly significant as competition grows.

Hospital food service and cuisine are fabled for literally leaving a bad taste in one's mouth. One can envision the traditional scenario. A tray of food is served by an employee who simply places the tray in the room and rushes out. The food is bland in both looks and taste, and probably not what the patient ordered if any ordering was done at all. If the patient stays at the hospital two or three days, he or she may eventually select from a menu or converse with a foodservice employee who will record his or her food preferences. For many hospitals, this scenario has been the unfortunate reality.

Average hospital stays have now become shorter in response to increased ambulatory care and hospitals are increasingly responding to market-based competition.

It is now imperative that hospital foodservice departments provide competitive quality at the lowest possible cost. New technologies such as computerized, interactive menu systems could theoretically allow foodservice departments to offer increased customer satisfaction while also cutting costs at all levels. The focus of this study was to determine how hospitals nationwide were responding to the dilemma of cost cutting while achieving increased quality standards and in what ways technologies were being embraced to provide service excellence at cost savings.

## **PROBLEM STATEMENT**

Numerous strategies may be utilized for adjusting a hospital menu system in response to budget constraints and/or increased service quality. Some hospitals have focused predominantly on financial limitations by offering less food selections at meals or no choices of food items. Others have been motivated by competition and service excellence, offering restaurant or hotel-type service or by offering increased personal interaction between patient and hospital representative. Still others have attempted to find a way to both cut costs and increase customer satisfaction, often utilizing technologies such as computerized menu systems. This was an attempt to identify a wide range of current menu systems strategies and the rationale for such operations. Specifically, this study examined the extent that new technologies were use and the outcome or predicted outcome to cost and patient satisfaction.

## **BACKGROUND**

The traditional hospital menu service involves printed, paper menus that are usually generated from a dietary department office and passed by hand to each patient. The patients are given a certain length of time to select menu choices for all three meals for the next day before they are picked up by hospital staff and returned to the kitchen. Often the menus are manually reviewed and

edited to assure that the selections picked by the patient comply with therapeutic diet restrictions.

This system has various shortcomings. Usually, many employees are involved in the menu delivery and pick up process. For example, one employee may be in charge of delivering all menus to a patient unit, another responsible for delivering the menus to each patient, another in charge of picking up the menus and returning them to the kitchen, and yet another employee responsible for review and editing the menu selections. Often various departments are involved. Foodservice employees, for example, may be responsible for delivering the menus to patients, but it may be nursing or unit staff who are actually available to patients on the unit to assist in the menu selection and retrieval process. Foodservice staff with clinical nutrition training may then be responsible for reviewing and editing selections. If one of these employees fails in his or her duties, the patients will not receive their own meal choices.

Paper menus are often expensive to print and are environmentally wasteful. They offer limited information to patients, are generally inflexible, and are easily lost and soiled. Menus are usually picked up from patient rooms in the early afternoon. If a patient arrives after the scheduled menu pick up time, he or she usually has no opportunity to select menu choices. In these cases, the patients must accept standard menu fare for all meals for the following day.

Hospitals as a whole are responding gradually to the problematic area of menu systems. Many hospitals are still utilizing this traditional system, while

others have made some modifications such as prescreening some patients for food preferences and menu selections prior to admission or installing computers to print menu selections and store patient food preference data. Other facilities have taken more user friendly measures such as installing interactive software that allows patients to select menu items from their rooms or providing staff with palm held computers that allow patient selections to be personally retrieved and instantly conveyed to the kitchen diet office.

A brief pilot study of five Rochester, New York area hospitals was conducted. Foodservice staff from Strong Memorial Hospital, Highland Hospital, St. Mary's Hospital, Rochester General Hospital, and Park Ridge Hospital were asked to briefly describe the menu presentation and selection recording systems currently in place. All five hospitals presented meal choices to patients via paper menus. Two of the five had computerized diet offices. Three of the five were obtaining menu selections from patients by collecting menus with patient circled food choices. One hospital was utilizing hand held computers operated by foodservice staff to obtain patient food selections, and the other was experimenting with palm top computers at the time of this study. None of the five hospitals piloted were surveyed further for the final study.

## **PURPOSE**

The purpose of this study was to identify the most commonly utilized menu systems in US hospitals and to identify trends in the use of recent technologies for such menu systems.

## **SIGNIFICANCE**

In this era of increasing hospital downsizing, merging, and even closings, identifying competitive methods involved in the inpatient foodservice menu delivery system is important. Foodservice administrators will have interest in this study as a method of obtaining market survey data to determine whether or not their present procedures are up to current market standards and to obtain ideas for possible systems improvements. The study is significant to foodservice workers as it presents data on the use of automated equipment which are currently or will possibly be utilized by staff members as part of their daily job duties. Also, the study is of importance to patients and future patients in assessing current trends in customer service and in outlining what patients might expect from the menu selection process nationwide.



## **HYPOTHESIS**

The expected result of this study was that, while automated menu system technologies are becoming increasingly available, they are currently not widely used to convey menu choices. The hypothesis was based on the pilot study wherein none of the five hospitals surveyed were utilizing automated methods to convey menu choices to patients. As the pilot study revealed that two of the five hospitals surveyed (40%) were utilizing some form of computerization to record patient menu selections, it is further hypothesized that the data will reveal that less than one-half of hospitals surveyed will be found to be currently using software packages to assist in the recording of patient menu selections.

## **ASSUMPTIONS**

### **Ideological**

Any analysis to be done in the comparison of hospital menu systems must guard against personal bias.

## **Procedural**

It was assumed that foodservice directors were able to determine which menu systems were presently in use or have been used in the past and that they have provided accurate responses to the questions contained in the questionnaire. Since the SPSS-X software was used for statistical analysis of data, it was assumed that the results were not manipulatable as data was numerically scored.

## **SCOPE AND LIMITATIONS**

This limitations of this study were affected by the selection of the participants and by the scope of the study. The study was focused on discovering trends in menu systems and does not detail the strengths and weaknesses of any of the menu systems currently being utilized.

## **LONG RANGE CONSEQUENCES**

The results of this study can serve to stimulate further research on the use of technology to improve customer satisfaction in regard to foodservice in health care. Should the findings of this study be in accordance with the hypothesis, further research should be undertaken to further validate the findings. The findings, whether they be in agreement or contrary to the

hypothesis, will be beneficial for all foodservice directors in determining the current menu service technologies being utilized in the hospital environment.

## **DEFINITION OF TERMS**

**Automation -** Automatic operation of an apparatus, process, or system by mechanical or electronic devices that take the place of human operators (Webster, 1964)

**Blast Chilling -** Process wherein food is cooked, quickly chilled, and later reheated.

**Continuous Quality Improvement -** A long-term, proactive strategy to improve patient care and satisfaction, increase utilization, strengthen productivity, and enhance cost-effectiveness throughout the organization (Byers et al., 1994)

**Cycle Menu -** A menu that repeats at regular intervals (Kotschevar et al., 1996)

**Entrepreneurship -** The act of organizing, managing, and assuming the risks of a business or enterprise (Webster, 1964)

<b>Full Time Equivalent (FTE) -</b>	Employee who works on a full-time basis for a specific period of time (Byers et al., 1994)
<b>Paradigm -</b>	A mental frame of reference that dominates the behavior and thought processes of an individual or group of individuals (Albrecht, 1990)
<b>Paternalism -</b>	The principle or practice of governing or of exercising authority (as over a group of employees) suggesting the care and control exercised by a father over his children (Webster, 1964)
<b>Segmentation -</b>	The process of dividing into many sections (Webster, 1964)
<b>Service -</b>	A task performed by one party for the benefit of another (Albrecht, 1992)
<b>Technology -</b>	A technical method of achieving a practical purpose (Webster, 1964)

## **Chapter II.**

### **LITERATURE REVIEW**

#### **The Changing Paradigms of Healthcare**

The health care industry is currently in a vast state of change. Costs are high, with health care expenditures up over 800 percent since 1960 (Boyle et al., 1994). By 1992, more than 14 percent of the gross domestic product was spent on health care (Byers et al., 1994). Various societal factors have contributed to this rise in health care expenditures, including an aging population, increased demand fostered by more consumer awareness of health issues, an increased focus on preventative medicine, and continuing technological advances in medicine. The rising costs associated with the health insurance process, the healthcare liability insurance for practitioners, innovative technologies, and administrative expenses have also contributed substantially to the overall increase in the cost of healthcare (Boyle et al., 1994).

Efforts to combat rising health care costs have included the reduction of length of hospital stays and increasing copayments and deductibles for consumers, a changing focus on prevention, the modification of hospital and

physician reimbursement mechanisms, the slowing of hospital construction, and restricting the access of new technology (Boyle et al., 1994).

While contending with rising costs, the health care industry is also experiencing such paradigm shifts as increased government intervention and an increased focus on customer satisfaction, high-quality care, continuous quality improvement and advances in technology, and a work force which is increasingly older, less literate, and culturally diverse (Byers et al., 1994).

Zemke cites the dilemma of too many hospital beds competing for too few patients as the core of the ills penetrating the American health care system. Increasingly, overcapacity threatens to undermine hospital profits as patient volume declines and costs increase (Zemke et al., 1989). Major medical service providers have undergone vast changes in this world of cost containment and budget controls. Shrinking revenues have spurred tight competition among health service providers and patients are increasingly seen as customers (Wielawski, 1993). Hospitals are now understanding that patients are people, people are actually markets, and market needs must be addressed to remain in business. According to Zemke, hospital administrators must increasingly devote their predominant efforts on ways to stay ahead of the competition, with the focus on marketing strategies and segmentation. Hospitals are becoming increasingly hotel-like, with many offering luxury suites for upscale patients. The focus of personnel training is changing, and hospitals are now routinely offering people-skills training programs. Hospitals are finding various new ways of creating revenues from classes in fitness and weight

reduction to packaging and selling meals for individuals with special dietary needs (Zemke et al., 1989 ).

### **Obstacles for Change**

In this age of change and customer service focus, Eisenberg states that the health care industry must overcome four traditional barriers to developing a service orientation. These are:

1. hospitals are extremely regulation governed;
2. they hold a traditional resistance to entrepreneurship;
3. they breed a culture of paternalism; and
4. the traditional medical model serves as a pretext for interactions between health care workers and customers. (Eisenberg, 1997).

Perhaps one of the most recent significant additional government regulation facing the health care system of the United States has been the federally instituted plan calling for payment by Diagnostic Related Grouping (DRG). Under this system, initiated in October of 1983, the government reimburses the health care provider a flat rate based upon the statistically estimated amount of time involved in a given procedure. The theory is that the time and care required for a medical procedure can be based on a statistical norm, with reimbursement to the provider being based on that midpoint. Hospitals therefore stand to lose revenue on treatments requiring time above the norm, but obtain increased profits in treating patients who move through the system more quickly. Therefore, the motivation to discharge patients as quickly as possible remains very significant (Zemke et al., 1989).



## **Meeting the Demands of Customers**

The traditional service firms, dating from the industrial revolution through the 1970's, built market shares on two main strategies. First, the focus was to maximize tangible quality attributes of products in an effort to raise perceived value in the eyes of the consumer. Secondly, firms attempted to increase productivity and optimize standardization techniques in order to keep prices low (Vandermerwe et al., 1988).

The 1980's, however, were marked by significant changes in service firms. Services were no longer individual components, but rather a part of a total marketing package. As value is now associated with overall performance of the whole system, today's market leaders must offer product-service combinations (Vandermerwe et al., 1988).

There are various premises that differentiate the consumer of today versus the traditional customer. The traditional consumer associated value with the tangible, whereas the consumer of today values results over actual products and services. Modern firms must also increasingly respond by offering solution systems consisting of product-service components which contain increasingly more services (Vandermerwe et al., 1988).

Belanger and Dube surveyed 102 hospitalized patients in a specialized, acute-care, urban hospital in Canada to investigate the dimensions of patients'

emotional experiences of hospitalization and to investigate the correlation between emotional experiences to satisfaction with foodservice. They found that patients' perceived control over situations had a powerful influence of patient emotions, with patients who felt in control of situations during hospitalization expressing substantially more positive emotions. Overall satisfaction with foodservice was based on both interpersonal and technical dimensions. Of the two, the interpersonal aspects were scored as having substantially greater significance to patients than technical attributes (Belanger et al., 1996).

### **Satisfying the Needs of Customers Through Technology**

Zemke dubs the 1970's and 1980's as the "wonder years" of technology. In these past two decades civilization has witnessed magnificent advances such as lasers, fiber optics, satellite relays, cellular networks, voice synthesization, microwave transmission, digital switching, and a vast array of others (Zemke et al., 1989). Between 1970 and 1985, the share of total capital invested by service industries increased nearly two-and-a-half times. Of all technologies, those associated with information handling have had the greatest impact in recent years (Heskett et al., 1990).

While the last twenty years have been the "wonder years", Zemke believes that the next twenty may be appropriated named the "service years"

(Zemke et al., 1989). Competitive corporations will combine the technological advances of the last twenty years with the service philosophies of the present and the future.

Adopting new technologies in services is not without its challenges. Because customers always participate indirectly, and often directly in technologically advanced services, the success of the innovation depends directly on customer acceptance (Fitzsimmons et al., 1994). Heskett (1990), Sasser (1990), and Hart (1990) describe the introduction of new technologies as much the same as transplanting a human organ from one body to another in that the organ may be perfectly functioning, yet the body may still reject it. Both the customer (the body) and the service (the organ) must believe that there are benefits in using the new technology (Heskett, 1990).

Martin identifies four basic needs of customers as:

1. the need to feel important;
2. the need to feel welcome;
3. the need to be understood; and
4. the need for comfort (Martin, 1989).

Because customers participate directly in the service process, success will depend on customer acceptance. Corporations must consider whether or not there will be a loss of personal attention for customers and whether or not consumers will be required to learn new skills. The implementation of automatic teller machines did involve a loss of personal attention and some basic new skills for customers. However, because of the perceived benefits of

convenience, minimized customer waits, and overall time savings, this automation is now widely utilized. Acceptance of technology also depends on whether or not there will be a perceived loss of consumer benefits. Self-serve gasoline pumping stations were initially perceived as deleting the benefit of personal service, although are now widely accepted secondary to consumer cost savings (Fitzsimmons et al., 1994).

At Federal Express, early tests of hand-held shipment tracking devices nearly failed because couriers objected to the fact that they were being asked to input information that was not previously required, hence slowing the pick-up and delivery process. A change in the software was made to reduce the number of questions which resulted in the positive aspects of the technology outweighing the negatives for both couriers and customers (Heskett et al., 1990).

Another challenge involved in the investment in technology involves the thought that technology can be substituted for people in an organization. While this may be partially true, many service firms fail to realize their expectations by investing too much in the technology itself and not enough on the training of employees to use it effectively.

According to Heskett, Sasser, and Hart (1990), technological advances must enable the creation of services that are more responsive to consumers. Sasser and Fulmer (1991) state that this is achieved through identification of individual customer needs, individualized improvement and execution of consumer encounters, and improved convenience for customers.

Additionally, technological advances must succeed in the improvement of overall quality (Heskett et al., 1990).

Heskett, Sasser, and Hart (1990) elude to a “holy trinity of technology” in that materials, methods, and information are intertwined in the successful implementation of technology. For example, the development of lightweight metals made possible the construction of more efficient aircraft that resulted in a change in the technology of methods used in the airport business.

### **The History of Technology in Foodservice**

In the health care arena, diagnostic and treatment technologies have had a dramatic impact. Yet, because of the capital expenditures involved in such technologies, the food and nutrition services departments of many hospitals have been left out of the technology loop (Byers et al., 1994). Overall, health care has been traditionally slow to implement software technology, especially in the area of food service (Byers et al., 1994).

Technological advances in the food arena have included biotechnology, sous vide (wherein freshly prepared foods are processed with low temperature cooking and vacuum-sealed in pouches), irradiation, and fat replacement. In hospital food service departments, technological advances include software systems to manage information such as procurement, inventory control, point-

of-sale information, and standardized recipes. Clinically, usage of software programs for nutritional analysis and clinical applications is on the rise (Byers et al., 1994).

While almost nonexistent 10 years ago, software for foodservice is now abundant. As of 1995, more than 450 hardware and software vendors were supplying products for the foodservice industry. The technology services foodservice in areas such as accounting, catering, inventory control, menu design, menu engineering, nutrition analysis, payroll, recipe costing, scheduling, and table management (Sherer, 1995).

Recent advances in technology have also attempted to address the vast restrictions associated with the long standing method of conveying food choices to hospital patients: the paper menu. In a traditional paper menu selection system, menus are delivered to patients by nursing or foodservice staff. After patients have been given an opportunity to make selections, the menus are then picked up by staff and returned manually to the diet office wherein foodservice staff edits selections to comply with dietary restrictions. One of the most significant limitations to this system involves an overall lack of efficiency. Menu duties, including editing of individual patient information, folding, storage, delivery, pick-up, and, in many instances, the manual tallying of food choices, all require a significant amount of personnel time and energy. Menu forecasting has traditionally been subject to errors that result in increased costs and reduced overall patient satisfaction. Additional limitations of this system include limited patient interaction, high cost and environmental waste

associated with paper and printing, accuracy problems, and the related costs associated with the need for abundant personnel ("Better Selection," 1997), (Jamison et al., 1996).

### **Addressing the Problems of Traditional Menu Delivery Systems**

Some solutions to this problematic system have included to development of non-selective menus for patients or limited menus which reduce the number of modified diets. Printed menus have sometimes been replaced by verbal presentation of entree choices to patients by foodservice staff.

Vassar Brothers Hospital in Poughkeepsie, New York answered their menu problems by utilizing a preadmit selection system. Patients undergoing a pre-scheduled procedure at the hospital are given a food preference sheet to complete at the time of presurgical testing, generally four to seven days prior to admission. The food preferences are entered into a computer in the hospital kitchen and are automatically printed on menus once the patients arrive. This system has resolved the hospital's previous two day average lag in filling food requests for these types of patients (Davis et al., 1994).

The Presbyterian Hospital of Plano, Texas is a 150 bed acute care facility which formerly utilized a traditional seven day cycle menu. The hospital found that patients were often unable to select from the paper menus, which were passed out to patients after admission, because they were either not admitted

long enough or they were not accessible to food service employees in order to receive menus. Many patients had complained that they were being forced to select foods too far in advance of the actual meal time (Schuster, 1995).

The hospital recently switched to a limited selection for patients, offering fourteen hot and fourteen cold entrees. The new menu offers one hot and one cold entree at lunch and dinner and is presented orally to each patient by food service employees. The entire menu was made heart healthy to eliminate the need for many special diets (Schuster, 1995).

The goals of implementing the system were to avoid escalation of costs and to increase patient satisfaction. The hospital found that both goals were met beyond their expectations. The foodservice staff plans meal production based on the forecasts of selections. Each patient is verbally offered a choice of entree and beverage, but the same salad and dessert are placed on most trays. This new system allows for more effective forecasting and less waste (Schuster, 1995).

Physicians are pleased to be writing fewer restricted diet orders as the standard fare already encapsulates several traditionally restricted diets, and the hospital believes that it is a morale boost for patients to be told that, in spite of their dietary restrictions, they are free to order any of the food items found on the menu. Additionally, delivering to menu orally to patients gives foodservice staff the ability to respond to patients on an immediate basis. For patients who are not satisfied with any of the food choices on the menu, foodservice staff are empowered to accommodate requests from the hospital's cafeteria menu (Schuster, 1995).



Ohio State University Medical Center is a 600 bed acute care facility which formerly offered six menus with three varying cycle lengths. The facility recently devised a new system consisting of an eight day patient menu cycle. The number of entrees available has been reduced from thirty-five to fifteen. Patients are offered two hot entree choices and one cold entree choice at lunch and dinner and one entree at breakfast. As in the case of the Presbyterian Hospital of Plano, many of the menu items can be served on a variety of restricted diets. The new system has fulfilled the hospital's goals of cost reduction and improvement of patient satisfaction (King, 1995).

The Columbia Health Care Association of Fort Lauderdale, Florida wished to develop a paperless system and did so by offering a non-select menu. The entree, starch, and vegetable are offered to patients as a package. Patients are able to choose from a selection of beverages, condiments, and cold items. As an alternative, there is an unpublished list of food items for patients who cannot or will not eat the preselected meals. The hospital's primary goals in the development of the non-select system were reduced costs of food and labor. As the patients expected to choose foods from the hospital's former traditional cycle menu were generally not admitted to the facility for a long enough period to actually receive menus and make selections, the non-select system actually deleted perceived rather than actual choice (King, 1995).

When The New York Hospital-Cornell Medical Center in New York City opened a new inpatient facility in 1997, the goals were to replace the kitchen

system while continuing to work with limited space, design a production system geared to a new, upscale menu system. The hospital decided to utilize technology in the area of production, using blast chilling and central tray rethermalization. The hospital's menu goals were met by implementing a restaurant-style menu in order to increase the daily variety of food choices offered to patients. The menu features six entrees at lunch and eight at dinner. Additionally, there are daily soup, sandwiches, bread, beverage, condiment, and dessert choices. The menu highlights the total caloric and fat content in all foods offered. Low fat and low cholesterol choices are identified with symbols. Approximately 3,000 inpatient meals are served per day.

### **Implementing Foodservice Technology**

Computerization has attempted to address the problems of hospital menu delivery and other foodservice data storage and retrieval with the availability of a variety of new software (Jamison et al., 1996). A vast array of software is currently being advertised through the internet. For example, the Buckeye Technology software collection includes services for menu taking/tallying, adjusting patient choices to suit diet requirements, and supplying meals to patients unable to select from a menu ([www.peg.apc.org](http://www.peg.apc.org)). Computrition offers systems for cost control, inventory and orders, recipe and menu planning, and administrative duties ([www.computrition.com](http://www.computrition.com)). Geri Menu has food service and nutrition packages for long-term care facilities. Cbord

offers a full range of food service management and nutritional analysis software for healthcare institutions and other software such as that offered by ESHA research is available for recipe, food analysis, and labeling ([www.sfu.ca](http://www.sfu.ca)). Other information regarding new foodservice software can be found in *Byting In*, a newsletter about software for foodservice and nutrition applications.

Byers refers to several steps in the consideration and implementation of technology, specifically management information systems (MIS), in the healthcare arena. These steps are contained in the System Development Model described by Gordon, Necco and Tsai and are described below:

#### Step 1: Investigate the Current System

What problems might MIS solve? What new opportunities might MIS provide? What new software/hardware will be required? Will computer's presence increase or reduce the department's personnel requirements? What data bases and operational procedures will need to be developed? What costs are involved? Where will financial resources come from? If used by clinical nutrition staff, who will absorb the costs of nutritional services?

#### Step 2: Analyze the System

What is the existing system's ability to satisfy the information needs of managers?

### Step 3: Design the System

Software: Source (to what extent is management involved? )

Scope: range of application that can be performed by the software

Function: specific job that can be accomplished by software

Selection: determine what to purchase

Hardware: components, desirable characteristics, data bases, telecommunications (will there be a network linkage between the healthcare operation?)

Personnel: Who will manage and run the program?

Procedures

### Step 4: Implement the System

Preparation, installation, testing, and start-up

### Step 5: Maintain the System

### Step 6: Review the System

Review software, hardware, telecommunications, data-base, personnel, and procedures (Byers et al., 1994).

## **Automated Systems in Progress**

Jamison et.al. (1996) conducted a research project with the goal to reduce dietary department costs through labor reduction while continuing to offer menu selections to patients by using two items common to nearly every hospital room: the patient telephone and television. Software was developed utilizing Windows (version 3.11, 1993, Microsoft Corporation, Redmond, Wash) and built around an automated voice interface subsystem that answers the telephone, collects information, and prompts the user to follow instructions for the selection of menu items. The system also involves diet office functions such as the recording of patient admission, transfer, and discharge, the ordering of guest trays, and diet order changes. The system's interactive communication multimedia network allows patients to select menu items while viewing a full-color display of the hospital menu on using the in-house video channel. Patients press numbers on the touch tone keypad of the bedside telephone that correspond to food items displayed. A personal computer located in the diet office records selections and provides a printed tray ticket of patient menu selections along with a daily tally for production purposes. The system was piloted at a Texas hospital with the expected benefits being reduction in labor time, faster and more accurate meal service to patients, improved public relations for the hospital, and improved patient satisfaction through personal menu choices. Results of the patient survey which followed the trial of this system indicated that patients had a significant preference for the computerized system over the printed menu system based on interest, convenience,

availability, satisfaction, and motivation. Patients did not, however, consider the system substantially easier to use than the printed menu system (Jamison et al., 1996).

Irving Healthcare in Irving, TX, struggled with the problems associated with paper menus. Patients who did not fill out their menus received a standard non-select menu, resulting in some patients receiving foods that they did not enjoy. The hospital now utilizes computer software and has installed a terminal at every bedside for the entry of meal choices. This 234-bed hospital uses the Nutrition Care Management (NCM) software system from Computrition, Inc. for nutrition service personnel and other health professionals to receive patient selections and input them into the computer, where they are automatically corrected and tallied by the software. The patient menus are pre-edited before they appear on the computer screen, offering only those items allowed based on the patient diet order. The hospital has found that patients have more opportunity to select food choices, which has resulted in increased satisfaction with meals. Additionally, the software offers more flexibility to change menus instantly. Diet technicians no longer spend the previous 2.5 hours each distributing and collecting paper menus, and now have more time for clinical duties. The foodservice department was able to save 1/2 of a full time equivalent (FTE) staff person with the addition of automation ("Irving Healthcare", 1996).

The initial goals at Ingalls Memorial Hospital in Harvey, Illinois were to provide better care and to reduce food and labor costs. The hospital's long

standing menu system involved a traditional, paper menu which was collected one day in advance of meal service. Although patient satisfaction surveys revealed acceptable responses from patients, the foodservice department strived for outstanding service. In 1995, a spoken menu system was implemented throughout the entire 450-bed hospital. A non-selective menu is verbally described to patients by hospital associates at 9:00 am for lunch, 2:00 pm for dinner, and in the evening for breakfast the next day. The items are recited, and the patient either accepts the entire menu or is offered alternatives for foods they will not accept. Hospital records reveal that approximately 80% of patients accept all menu items. The hospital was able to restructure its staffing, reducing overall FTE's (Jackson, 1995).

## **Chapter III.**

### **METHODOLOGY**

#### **Application**

Hospital foodservice directors composed the sample for this study. In attempting to reduce confounding variables, the hospitals that were chosen were classified in the AHA Guide to the Health Care Field (American Hospital Association, 1996) as general rather than Veterans Administration and were listed as having 300 or more inpatient beds.

#### **Questionnaire Development**

The questionnaire was composed of 20 questions and is shown in Appendix I. Questions were predominantly closed-ended with both ordered and unordered answer choices and also included some partially closed questions as well as open ended questions. Questions were developed to be easily understood and non-bias utilizing guidelines cited by Hayes (1992).

#### **Data Collection**

Cover letters and questionnaires (Appendices I and II) were sent to 300 hospitals from 41 states and Washington, DC. The hospitals that were chosen met the characteristics as defined above and were chosen otherwise at random with the goal being to obtain data from as many states as possible. The 9 states were not represented in the AHA Guide to the Healthcare Field as having any



hospitals which met the criteria for the study defined above. Foodservice directors were encouraged to complete the questionnaires within two weeks and instructed to seal the completed questionnaires in the self-addressed stamped envelopes provided. The disbursement of questionnaires by state is illustrated in Table 1 on the following page.

**TABLE 1. DISTRIBUTION OF QUESTIONNAIRES BY STATE**

STATE	# SENT	STATE	# SENT
AL	12	MO	4
AK	1	NE	1
AZ	5	NH	1
AR	4	NJ	15
CA	26	NM	1
CO	7	NY	19
CT	6	NC	7
DC	4	OH	11
FL	17	OK	6
GA	9	OR	2
IL	21	PA	11
IN	7	RI	1
KS	6	SC	3
KY	6	SD	1
LA	5	TN	2
ME	1	TX	13
MD	11	UT	2
MA	4	VA	3
MI	21	WA	3
MN	8	WV	3
MS	6	WI	4

## **Data Analysis Method**

Programs and routines in the Statistical Package for the Social Sciences (SPSS-X, version 2.1, 1986, SPSS, Chicago, Ill) were used for all data analyses. Frequencies were calculated for all variables. Means were computed for all ratings. Factor scores were calculated by computing the mean of the statements that composed the factor. Reliability of all resultant factor scores was estimated using a coefficient variable.

## **CHAPTER IV**

### **RESULTS AND DISCUSSION**

One hundred and forty (47%) of the questionnaires distributed were returned. Five questionnaires were not used in the data analysis: four because they were returned incomplete and one because it arrived too late to be included.

#### **General Characteristics of Respondents**

Foodservice directors were asked to provide general information regarding their respective facilities to determine an average hospital foodservice profile.

#### **Inpatient Beds**

Table 2 on the following page illustrates to number of patient beds in the facilities surveyed. 96% of facilities surveyed had less than 300 beds, while 4% had over 300 beds. Two respondents added comments differentiating between available beds and average number of utilized beds. The question did not specify whether or not "average number of operating beds" was being requested, though, based on respondent comments, was open to interpretation in this regard.

**TABLE 2: NUMBER OF PATIENT BEDS**

<b><u># of Beds</u></b>	<b><u># of Respondents</u></b>
<b>less than 200</b>	<b>72</b>
<b>200-299</b>	<b>58</b>
<b>300-399</b>	<b>4</b>
<b>400-499</b>	<b>0</b>
<b>500-599</b>	<b>1</b>
<b>TOTAL</b>	<b>135</b>

### **Meal Service**

96.3% of respondents indicated that their facilities offered full service breakfast, lunch, and dinner. The remaining 3.7% offered continental/buffet style meals at one or more time throughout the day.

### **Foodservice System**

Table 3 on the following page illustrates the type of foodservice systems in place at responding facilities. 80% of foodservice directors were affiliated with a conventional foodservice system wherein food is plated hot and served immediately. 17.7% of respondents were currently utilizing some type of quick chill system wherein food is cooked ahead of time and plated later. Less than

1% predominantly use a microwave system, and 1.5% indicated that food is prepared off-site.

**TABLE 3: TYPE OF FOODSERVICE SYSTEM IN USE**

<b><u>Type of System</u></b>	<b><u>Number of Respondents</u></b>
<b>Conventional</b> (food plated hot and served immediately)	107
<b>Conventional Quick Chill</b> (food cooked and quickly chilled in bulk, reheated, plated, and served immediately)	7
<b>Computer Driven Central Rethermalization</b> (food quickly chilled and reheated on trays in central location)	7
<b>Computer Driven Decentralized Rethermalization</b> (food quickly chilled and reheated on trays in various locations throughout the facility)	10
<b>Microwave</b> (food plated cold and heated via microwave oven)	1
<b>Food Predominantly Prepared by Another Party Off-Site</b>	2
<b>Other</b>	1
<b><u>TOTAL</u></b>	<b>135</b>

### **Menu Styles**

Table 4 on the following page illustrates the type of menu used at responding facilities. The majority of respondents (73%) offer a select menu to patients. 13% offer no selection of menu choices, 8% offer some limited

selections, and 5% offer a restaurant style menu wherein the same choices are available to patients each day.

**TABLE 4: TYPE OF MENU UTILIZED**

<b><u>Type of Menu</u></b>	<b><u># of Responses</u></b>
<b>Complete Non-Select</b>	<b>17</b>
<b>Modified Non-Select</b>	<b>10</b>
<b>Select</b>	<b>99</b>
<b>Restaurant Style</b>	<b>7</b>
<b>Other</b>	<b>2</b>
<b><u>TOTAL</u></b>	<b>135</b>

**Characteristics of Menu Display Systems**

Table 5 on the following page outlines the methods which hospitals are currently utilizing to communicate to patients.

**TABLE 5. MENU DISPLAY SYSTEMS CURRENTLY IN USE**

<b>Menu Display Method</b>	<b>Preferred n</b>	<b>Alternate n</b>	<b>Not Used n</b>	<b>New in Last 5 Years n = 31</b>
Paper Menu	104	9	22	1
Verbal, InPerson	32	47	56	21
Closed Captioned TV	1	2	132	1
Verbal, Telephone	3	29	103	4
Non-Select	8	3	124	4



Directors were asked to rate each method as “preferred”, “alternate”, or “not used” as well as which systems the facility within the last five years. As shown, paper menus are still widely utilized as the most common method for communicating menu choices to patients.

### **Method of Obtaining Patient Menu Selections**

Table 6 illustrates the individual responsible for obtaining menu selections from the patient. As shown, 35% of patients self-select, while 47% of facilities delegate the responsibility to dietary staff, 7% to unit staff, and 1% to nursing staff. 10% of facilities offer a non-select menu system, and this question was therefore non-applicable.

**TABLE 6: METHOD OF OBTAINING PATIENT MENU SELECTIONS**

<b><u>Individual(s) Delegated to</u></b>	<b><u>Number of Respondents</u></b>
<b><u>Obtain Menu Selections</u></b>	
Patient Self-Selects	47
Diet Staff	63
Unit Staff	10
Nursing Staff	2
Non-Select Menu System	13
<b><u>TOTAL</u></b>	<b>135</b>

Table 7 outlines the methods for recording menu selections currently being utilized as well as the type of selection systems which respondents indicated were new to their facilities in the last five years.

As shown, most selection recording systems have been in place longer than 5 years (85%), and handwritten recording systems account for the vast majority of systems currently in place. Of the automated systems, the diet office computer is most widely utilized.

**TABLE 7. METHOD FOR RECORDING MENU CHOICES**

<b><u>METHOD TYPE</u></b>	<b><u>% CURRENTLY USED (n=135)</u></b>	<b><u>% NEW IN LAST 5 YRS (n=21)</u></b>
HANDWRITTEN	70.4	5
COMPUTER IN DIET OFFICE	12.6	42
N/A = NON SELECT	9.6	19
HAND HELD COMPUTER	3.0	5
VOICE ACTIVATED COMPUTER	2.2	19
N/A=IMMEDIATE SERVICE	1.5	5
SCANNER	0.7	5
<b>TOTAL</b>	<b>100</b>	<b>100</b>

Respondents were not asked to specify what brand or type of diet office computer software was being used.

Respondents were provided with a list of factors and asked to identify which were considered when making the decision to change the menu selection system in place at their respective facilities. Table 8 on the following page illustrates the responses to this question.

**TABLE 8. GOALS CONSIDERED IN CHANGING MENU**

**RECORDING SYSTEMS**

<b>CONSIDERATIONS</b>	<b>% RESPONDING</b>
PATIENT SATISFACTION	33
FOOD COST	27
COMPATIBILITY WITH FOOD SERVICE SYSTEM	18
LABOR COST	16
SKILL LEVEL OF LABOR	4
PAPER COST	2
UTILITY COST	0

When asked if the goals listed in Table 8 were met with change, 86% of respondents indicated the affirmative, and 14% stated that the goals were not met. The respondents were then asked whether data was available to support this response. Fifty-nine percent indicated that they had available data in support of these contentions, while 41% stated that the data was not available.

### **Satisfaction with Menu Selection System**

Table 9 on the following page illustrates directors' degree of satisfaction with menu selection recording systems currently in use. Directors were asked to rate their satisfaction level as either "extremely satisfied", "somewhat satisfied", "neither satisfied nor dissatisfied", "somewhat dissatisfied", or "extremely dissatisfied". As shown, the majority of respondents were somewhat satisfied with their current menu system regardless of the type of system in place.

**TABLE 9. RESPONDENT SATISFACTION RATING OF MENU ENTRY SYSTEMS**

<b>SYSTEM</b>	<b>EXTREMELY SATISFIED (%)</b>	<b>SOMEWHAT SATISFIED (%)</b>	<b>NEITHER SATISFIED NOR DISSATISFIED (%)</b>	<b>SOMEWHAT DISSATISFIED (%)</b>	<b>EXTREMELY DISSATISFIED (%)</b>	<b>TOTAL N (100%)</b>
HANDWRITTEN	5 (n = 5)	39 (n=34)	10 (n=9)	32 (n=28)	14 (n=12)	88
HAND HELD COMPUTER	50 (n=2)	50 (n=2)	0	0	0	4
VOICE ACTIVATED COMPUTER	0	33 (n=1)	33 (n=1)	33 (n=1)	0	3
COMPUTER IN DIET OFFICE	6 (n=1)	76 (n=13)	0	18 (n=3)	0	17
NON-SELECT MENU	18 (n=2)	64 (n=7)	18 (n=2)	0	0	11
IMMEDIATE SERVICE	50 (n=1)	50 (n=1)	0	0	0	2
SCANNER	0	100 (n=1)	0	0	0	1
<b>TOTAL N</b>	<b>11</b>	<b>59</b>	<b>12</b>	<b>32</b>	<b>12</b>	<b>126</b>

MEAN = 2.644

MEDIAN = 2.000

The mean score was 2.644, indicating that the average foodservice supervisor feels somewhere between somewhat satisfied and ambivalent with his or her current menu selection entry systems. The median and mode of 2 demonstrate that "somewhat satisfied" was the most commonly chosen answer. As illustrated, most foodservice directors were somewhat satisfied with their current systems regardless of what type of system was in place, computerized or otherwise.

Respondents were asked whether or not they would consider an automated menu system in the future, and Table 10 on the following page illustrates responses based on respondent satisfaction with current menu choice recording system. As shown, most foodservice directors would consider automation in the future, even though the vast majority had manual systems and were currently at least somewhat satisfied with these systems.

Automation does not follow with a positive level of satisfaction in all cases. Of note, 1 of the 3 facilities utilizing voice activated computers responded to satisfaction level as "somewhat dissatisfied". 18% of those with computerized diet offices were somewhat dissatisfied as well, while just 6% were extremely satisfied with these systems.



**TABLE 10. DECISION TO CONSIDER FUTURE  
AUTOMATION IN MENU CHOICE ENTRY SYSTEMS BASED  
ON SATISFACTION WITH CURRENT SYSTEM**

<b><u>SATISFACTION W/ CURRENT SYSTEM</u></b>	<b><u>WOULD CONSIDER FUTURE AUTOMATION</u></b>	<b><u>WOULD NOT CONSIDER FUTURE AUTOMATION</u></b>
EXTREMELY SATISFIED	7	2
SOMEWHAT SATISFIED	56	3
NEITHER SATISFIED NOR DISSATISFIED	10	1
SOMEWHAT DISSATISFIED	32	0
EXTREMELY DISSATISFIED	11	1
n=	116	7

The questionnaire concluded by asking respondents whether or not they would consider automated menu systems and asked for comments as to why or why not. Table 11 on the following page displays the grouped responses to these questions.

**TABLE 11. FACTORS CONSIDERED IN DECIDING WHETHER OR NOT TO  
IMPLEMENT AN AUTOMATED MENU CHOICE ENTRY SYSTEM**

<b>FACTORS CONSIDERED</b>	<b>(%)</b>	<b>n =</b>
YES, ALREADY PLANNING IT	24	21
YES, FOR PATIENT SATISFACTION	21	18
YES, FOR INCREASED EFFICIENCY	15	13
YES, FOR MORE "JUST IN TIME" ALTERNATIVE	1	1
YES, FOR INCREASED FORECASTING OPTIONS	2	2
YES, FOR COST SAVINGS	9	8
YES, FOR LABOR REDUCTION	7	6
YES, FOR EASE IN MENU CHANGES	1	1
YES, FOR IMPROVED ACCURACY	2	2
YES, FOR WASTE REDUCTION	1	1
NO, HAPPY WITH CURRENT SYSTEM	5	4
NO, TRIED PREVIOUSLY AND FAILED	1	1
NO, COST TOO HIGH	1	1
NO, WILL NOT AUTOMATE FURTHER	1	1
NO, QUESTION PATIENTS' FAMILIARITY WITH AUTOMATION	4	3
MIGHT, SHOW ME	5	4
<b>TOTAL</b>	<b>100</b>	<b>87</b>

As shown, the majority of foodservice directors would consider automation and are in fact already in the planning stages. Patient satisfaction prevailed as the most commonly cited reason for choosing an automated menu system. Cost savings and labor reduction were cited as the second and third most common reasons.

## **CHAPTER V.**

### **SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS**

#### **SUMMARY**

While both cost savings and patient satisfaction are important considerations in the decision to invest in computerization in the hospital foodservice setting, customer service appears to be the prevailing focus of today's foodservice director.

Computerization is evolving extremely rapidly in today's society. The focus of this study was to determine at what rate hospital foodservice departments are embracing food and menu management technologies. the project sought to answer this question by investigating automation trends in hospital kitchens nationwide. The researcher surveyed large hospitals utilizing a written questionnaire.

#### **CONCLUSIONS**

The researcher hypothesized that the study would reveal that, although automated menu system technologies are becoming increasingly available, they are not currently widely utilized. A review of the statistical data clearly reveals this hypothesis to be true. Specifically, 77% of surveyed foodservice directors are still displaying menu choices via paper menus and 50% of

facilities are utilizing handwritten means to record patient menu selections. Most (74%) of current menu management systems have been in place for greater than 5 years. Automation is not always an indication of satisfaction. The majority of foodservice directors are at least somewhat satisfied with their current systems, regardless of whether or not these systems were automated.

## **RECOMMENDATIONS**

It is recommended that the study be repeated, with the results compared to the data in connection with this project.

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**APPENDIX A:**  
**Cover Letter to Respondents**

May 4, 1998

Dear Foodservice Director:

I am a graduate student at Rochester Institute of Technology in Rochester, New York. I am currently conducting a survey to determine trends in the utilization of automated menu selection systems.

The attached questionnaire has been sent to you and several other hospitals nationwide.

It would be extremely beneficial if you could take a few moments to answer the questions on the following pages.

Please return the questionnaire in the enclosed self addressed stamped envelope by **May 25, 1998**.

If you are interested in obtaining results of this survey, please indicate below and I will forward data to you as it becomes available.

Thank you in advance for your time and cooperation.

Sincerely,

Karen Wunder

\_\_\_\_\_: YES. Please send data results to:

\_\_\_\_\_ (Name)

\_\_\_\_\_ (Address)

\_\_\_\_\_

\_\_\_\_\_

## **Appendix B:**

### **Questionnaire to Respondents**

# FOODSERVICE QUESTIONNAIRE

1. What is the number of inpatient beds in your facility? (check one):

\_\_\_\_ Less than 200      \_\_\_\_ 200-299      \_\_\_\_ 300-399      \_\_\_\_ 400-499  
\_\_\_\_ 500-599      \_\_\_\_ 600-700      \_\_\_\_ 700-799      \_\_\_\_ 800 or above

2. Which best describes the meal service at your facility? (check all that apply)

\_\_\_\_ Full service breakfast, lunch, and dinner.  
\_\_\_\_ Continental/Buffer style at 1 or more meal  
\_\_\_\_ Predominantly boxed/bagged cold meals served at 1 or more meal time  
\_\_\_\_ Other. Please describe: \_\_\_\_\_

3. What is the average number of trays/meals served at the following meals (estimate amount):

Breakfast: \_\_\_\_\_

Lunch: \_\_\_\_\_

Dinner: \_\_\_\_\_

4. Which best describes the type of foodservice system in place at your facility (check one):

- \_\_\_\_ A. Conventional (food plated hot and served immediately)
- \_\_\_\_ B. Conventional Quick Chill (food cooked and quick chilled in bulk, reheated, plated  
hot, and served immediately)
- \_\_\_\_ C. Computer Driven Central Tray Rethermalization (food quick chilled and reheated on  
trays in a central location)
- \_\_\_\_ D. Computer Driven Decentralized Tray Rethermalization  
(food quick chilled and reheated on trays in various locations in the facility)
- \_\_\_\_ E. Microwave (food plated cold and heated via microwave oven on unit)
- \_\_\_\_ F. Food predominantly pre-prepared by another party off-site
- \_\_\_\_ G. Other (please describe): \_\_\_\_\_

5. Number of years this foodservice system has been in place (check one):

\_\_\_\_\_ less than 1      \_\_\_\_\_ 1 to 2      \_\_\_\_\_ 2 to 5      \_\_\_\_\_ greater than 5

6. If less than 5 years, which foodservice system from question 4 above best describes the prior system in place at your facility (circle one):

A                      B                      C                      D                      E                      F                      G

7. Which best describes your current menu system? (check one):

\_\_\_\_\_ A. Complete Nonselect Cycle (patients receive no choice of entree or side items - menu changes based on a calendar cycle)

\_\_\_\_\_ B. Modified Nonselect Cycle (patients have no entree choice, but have some selections of side items, beverages, etc.)

\_\_\_\_\_ C. Select Cycle (patients have two or more entree choices)

\_\_\_\_\_ D. Restaurant Style (varying choices offered daily from the same menu)

\_\_\_\_\_ E. Other (please describe): \_\_\_\_\_

8. How many years has the menu system described in question 7 above been in use (check one):

\_\_\_\_\_ less than 1      \_\_\_\_\_ 1 to 2      \_\_\_\_\_ 2 to 5      \_\_\_\_\_ greater than 5

9. If less than 5 years, which menu system from question 7 best describes the prior system in place at your facility (circle one):

A                      B                      C                      D                      E

10. How are patients made aware of menu offerings? Please respond to each of the following selections by designating the following: 1 = preferred method, 2 = alternate method, 3 = method not used

- \_\_\_\_\_ A. Patients at the facility on a planned admission are provided with printed menus of food choices prior to admission
- \_\_\_\_\_ B. Patients are provided with paper menus once admitted
- \_\_\_\_\_ C. Patients access menu offerings via telephone
- \_\_\_\_\_ D. Patients access menu offerings via closed captioned television
- \_\_\_\_\_ E. Menu selections described verbally, in person, by hospital staff
- \_\_\_\_\_ F. Other (please describe): \_\_\_\_\_

11. Which, if any, of the methods in question 10 above is/are new to your facility in the past 5 years (circle all that apply):

A            B            C            D            E            F

12. How many menu types do you have available for modified diets (eg. "house", "diabetic", "soft", etc.)

\_\_\_\_\_ 1    \_\_\_\_\_ 2 to 3    \_\_\_\_\_ 4 to 5    \_\_\_\_\_ 6 to 7    \_\_\_\_\_ 8 or more

13. If your menu selection system (as described in question 10) has changed in the past 5 years, what factors did you consider in making the change (check all that apply):

- \_\_\_\_\_ Savings in labor cost            \_\_\_\_\_ Savings in food cost
- \_\_\_\_\_ Savings in utility cost            \_\_\_\_\_ Skill level of labor
- \_\_\_\_\_ Increased compatibility with foodservice system
- \_\_\_\_\_ Increased overall patient satisfaction

a. Do you feel that the change has assisted you in achieving the factors outlined in question 13 above? (circle one):

YES            NO

b. Do you have data to support this? (circle one):

YES            NO

14. Who is responsible for obtaining menu selections from patients? (check the one primary party):

\_\_\_\_\_ patient self selects

\_\_\_\_\_ unit staff

\_\_\_\_\_ dietary staff

\_\_\_\_\_ nursing

\_\_\_\_\_ Other (please describe): \_\_\_\_\_

15. How are these selections recorded? (select all that apply):

\_\_\_\_\_ A. handwritten on menu

\_\_\_\_\_ D. entered to computer (hand held by staff)

\_\_\_\_\_ B. voice activated recorder

\_\_\_\_\_ E. voice activated computer

\_\_\_\_\_ C. entered to computer (permanently placed in patient room)

\_\_\_\_\_ F. Other (please describe): \_\_\_\_\_

16. Which, if any, of the systems in question 15 above is/are new to your facility in the past 5 years (circle all that apply):

A

B

C

D

E

F

17. Is there a different system for obtaining menu selections in place for newly admitted patients (less than 24 hour inpatient) vs those admitted over 24 hours? (circle response)

YES

NO

18. If you answered YES to question 17 above, which best describes the system for new patients (check one):

\_\_\_\_\_ new patients do not make menu selections

\_\_\_\_\_ selections obtained by unit staff

\_\_\_\_\_ selections obtained by dietary staff

\_\_\_\_\_ other, please describe: \_\_\_\_\_

19. How satisfied are you with your current menu system? (circle one)

extremely satisfied

somewhat satisfied

neither satisfied  
nor dissatisfied

somewhat dissatisfied

extremely  
dissatisfied

20. Would you consider increased use of automated menu systems at your facility in the future?  
(circle one)

YES

NO

Why or why not? \_\_\_\_\_

\_\_\_\_\_

Additional Comments:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Name of Individual Completing this Form: \_\_\_\_\_

Job Title: \_\_\_\_\_

Thank you for your time and input.